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CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society
Of America

Vol. III FEBRUARY, 1932 No. 8

Photo by Howard E. Gates

Lophocereus schottii
Punta Prieta, Lower California

(See page 136)

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CACTUS AND SUCCULENT JOURNAL

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THE CACTUS AND SUCCULENT SOCIETY OF AMERICA

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The President's Message

February 1932! The Third Anniversary of the founding of the Cactus and Succulent Society of America is celebrated. The growth of the Society in these three years has been so marked as to be almost unbelievable. Over fourteen hundred members have been received representing every continent on the globe. And while we rejoice in the rapid growth of our organization we are humble in the realization of the immensity of the work which lies before us.

I wish to express to the membership my sincere appreciation for the honor which has come to me in my election as president for a second term. I anticipate a steady growth and accomplishment during the coming year and ask for your earnest cooperation with our Executive Board in meeting the problems that confront us.

If I could have but one wish granted during the year, it would be that each member feel a deeper personal interest and responsibility in the work of the Society. We can give consideration to your wishes only as you make them known to us. We can profit by your suggestions only when they are presented in definite form. Your membership fee does not purchase for you a piece of merchandise but it purchases for you a service. We can serve best when the wishes of those whom we serve are known.

Our Society has always stood for conservation. However, during our early years when we were feeling our way, we did not make any definite statement as to our program of conservation.

In December 1931, our Conservation Committee consisting of Dr. Jacolyn Manning, Chairman, together with Messrs. W. H. Oliver and Edgar M. Baxter presented a program of Conservation which was unanimously adopted by the Executive Board and the Society in its regular meeting.

It is with pleasure that I present to you for your consideration the Conservation Policy of the Cactus and Succulent Society of America.

The CACTUS AND SUCCULENT SOCIETY OF AMERICA believes:

1. That, in general, Conservation of native plant life, including that of desert plants, can best be obtained through Education rather than by additional Legislation;
2. That every effort should be made to foster the propagation of cacti and other succulents from seed;
3. That when extensive road-building projects are contemplated, the cacti and other native plants which would naturally be destroyed in such operations, should be collected and used in reforestation;
4. That the existing State and National Parks and Monuments should be used for purposes of propagation and reforestation of native plant life;
5. That plant sanctuaries should be acquired in suitable areas where none have as yet been set aside;
6. That in areas where the climate is suitable, school and home desert gardens should be encouraged and that greenhouse and window culture should be recommended for colder climates;
7. That the collection of native plant life, including cacti, should be regulated by law enforcement.

BOYD L. SLOANE

1421 Dominion Avenue,
Pasadena California.

The Stapelieae

6. Huernia

(*Continued*)

By ALAIN WHITE *and* BOYD L. SLOANE

The stem of *H. oculata* is similar to that of "Penzig's Huernia", *H. penzigii* N. E. Br., having much larger and stronger teeth than *H. schneideriana* and thicker stems. *H. penzigii* was the first *Huernia* to be generally distributed

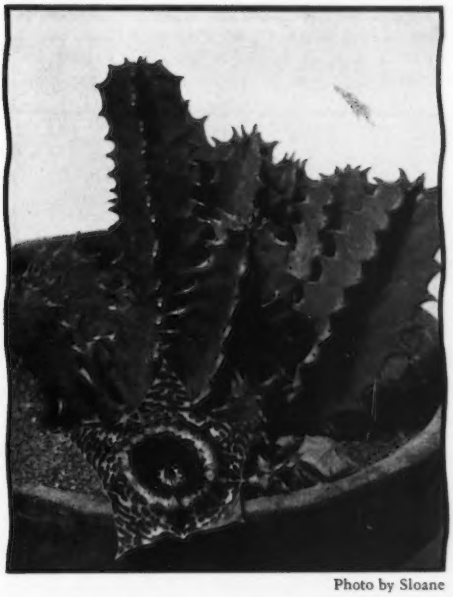


Photo by Sloane

FIG. 24. *Huernia transvaalensis*. ×.75.

in America. Its short, stout stems branching in thick mats are very characteristic, well deserving the name given by the Japanese to the genus *Huernia:* "The King of the Dragons". Penzig's Huernia certainly is a many-armed dragon. It is named for its discoverer, O. Penzig, a botanist of Genoa, Italy, who found it in the Italian colony, Eritrea, in North Africa in 1891. It was also collected by a German botanist, Schweinfurth, who found a variety in Eritrea which now bears his name: *H. penzigii var. schweinfurthii* Brgr. This variety is found in American collections and can be recognized by its invariably having five ribs, while the type has five, six or seven. Also in the variety there is a slight curved line impressed above each tooth, which is missing in the type. The flowers of type and variety are hardly distinguishable, that of the variety being slightly smaller. There are two other varieties of *H. penzigii*, one of them, *var. arabica* Brgr., being the only *Huernia* found in Arabia.

The flowers of *H. penzigii* are of one shade throughout, a rich deep purple. They are bell-shaped and not over three quarters of an inch in diameter. The inner corona, in common with those of the other Tropical *Huernias*, is of the *Plagiostelma* type.

There are several other interesting tropical *Huernias* in this same group, among them the "rough Huernia", *H. aspera* N. E. Br., the "Kenya Huernia", *H. keniensis* R. E. Fries,

Photo by James West

FIG. 25. *Huernia primulina* N. E. Br. × 3
Collection of James West

and the "pretty Huernia", *H. concinna* N.E. Br. Of these only *H. keniensis* is as yet known in America. Its flowers are slightly larger than those of *Huernia penzigii*, wholly purple brown. The five ribs are so obtuse that the stems appear almost round. The teeth are small. The plant

grows on Mt. Kenya in the British colony of Kenya just south of Abyssinia. It must be the species of all the STAPELIEAE which grows nearest the Equator, as Mt. Kenya is within one de-

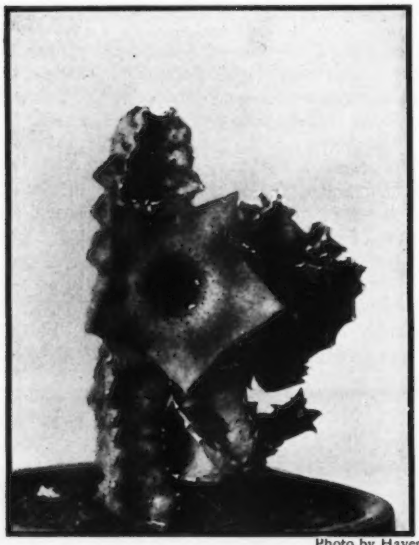


Photo by Havens

FIG. 26. *Huernia brevirostris* var. *intermedia*, × 0
Collection of W. I. Beecroft

gree south. It is a recent discovery, having been known only since 1922.

Huernia aspera has a stem not unlike that of *H. keniensis*, almost circular but the teeth are slightly more prominent. The flower is uniformly deep purple within. In *Huernia concinna* the stems are very similar to those of *H. penzigii* and the flowers pale yellow within, dotted with red. Both *H. aspera* and *H. concinna* are said to be easy and free growers, and they certainly provide our enterprising collectors with the chance to secure novelties of real interest.

* * * * *

The only interest which the STAPELIEAE have in the visits of the desert flies consists in provoking them to serve as carriers of pollen. There is no true exchange of courtesies, no quid pro quo. For awhile the flies linger about each lurid flower, lay their eggs at its center, and breed innumerable maggots. But it is all vanity. There is no nourishment in this vegetable sham-carrion, nothing but disillusionment behind the enticing odors and the festive colors. After two or three days the maggots all perish, the flower withers, and the little tragedy is over, to begin again on other flowers in the endless repetition which characterizes the processes of nature.

Whether the rings which feature many species of the STAPELIEAE play a part in all this deception it is hard to say. They may have been developed to afford the visiting flies a

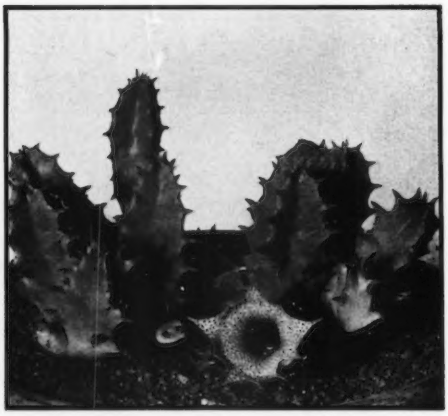


Photo by Sloane

FIG. 27. *Huernia barbata* ×.75

convenient landing field near the business center, or they may only be intended as windbreaks to shelter the stigmatic crown.

Whatever the scope of the rings may be, they are an interesting specialty of the STAPELIEAE and they take on many forms. In the *Duvalias*, the ring is a thin wall closely encircling the disk-like outer corona and, as it were, holding it

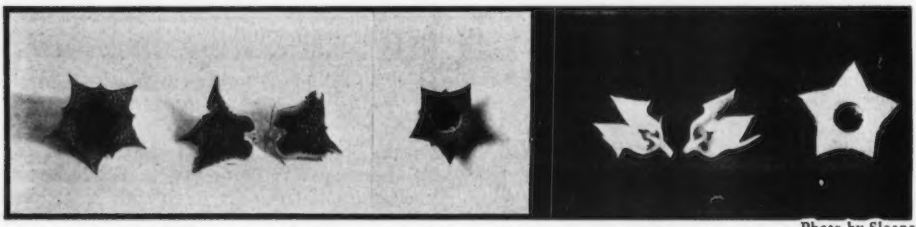


Photo by Sloane

(a) (b) (c) (d) (e)

FIG. 28. *Huernia* flowers ×.75 (a) *H. loesencriana*, (b) *H. loesencriana*, longitudinal section, (c) *H. thureti*, (d) *H. primulina*, longitudinal section, (e) *H. primulina*.

in place. In the *Orbeas* a raised wall is topped by a broad parapet, sometimes almost flat, at other times with a distinctly rounded contour. In *Diplocyatha* the ring wall is surprisingly high. In some *Stapelias,* such as *S. incomparabilis,* the wall is lowered into a solid cushion, whose formation of a ring is only fully realized when the flower is cut in cross-section. Here the cushion encloses a hollow which almost entirely shields the stigma crown. Finally in some of the *Huernias* there is a cushion-like ring, which is not solid, but is embossed into the fabric of the corolla. It is a convexity of about a quarter of an inch on the inner side of the corolla, accompanied by a depression of approximately the same extent on the outer side, so that the substance of the corolla fabric is only slightly thickened.

Conspicuous examples of a *Huernia* cushion occur in a number of related South African species, of which only the "zebra-like Huernia," *H. zebrina* N. E. Br., from Zululand, and the "Transvaal Huernia", *H. transvaalensis* N. E. Br., from Crocodile Poort in the Transvaal, are at present in American collections. These two species are very similar. James West has called them "Life-buoy plants" from the dominant appearance of their rings. Their color ranges from blackish purple to the color of raw beef-liver, freshly cut, and their surface is so shiny that they seem to reflect light and so make photography extremely difficult. *H. zebrina* is one of the *Plagiostelmas*: the inner corona lobes bend just over the anthers. *H. transvaalensis* belongs with the *Orthostelmas*: the lobes are produced beyond the anthers in erect awl-shaped points. In the "zebra" the cushion is conspicuously spotted, while in "transvaalensis" it is uniformly colored. "Transvaalensis" is further distinguished by the presence of hairs in the short central cavity. In both species the corolla lobes outside of the rings are striped for quite an area with bands of ochreous yellow, so prominent on the darker ground that the name "zebrina" would apply equally to either species.

Two other South African species from the *Plagiostelma* group, which occur in American collections, are the "short-beaked Huernia", *H. brevirostris* N. E. Br., and the "Primrose Huernia", *H. primulina* N. E. Br., both from the Cape. The ground color of their corolla lobes is a creamy pale yellow-green, and the flowers are small, especially those of the "Primrose". The stems, too, are on a smaller scale, and rather more irregular, the ribs at times somewhat spiral. In both there is a very faint ring, distinguishable only when the flower is cut in cross-section. The corollas of *H. primulina* are uniformly colored, except sometimes for a slight tinge of red at the base of the central tube; while *H. brevirostris* is freely marked on the lobes with very small red dots. All these *Huernias* are of easy culture and free blooming habit, and the stems and flowers alike are so odd as always to attract notice.

The second group of the *Huernias,* the section *Orthostelma,* with the corona horns extended above the anthers, is as yet poorly represented with us. Of fifteen species, we have only small plants of three: the "club-bearing Huernia", *H. clavigera* Haw.; the "bearded Huernia", *H. barbata* Haw., and "Thuret's Huernia", *H. Thureti* Cels. All three are from the Cape. *H. barbata* has already been shown in Fig. 7 (CACTUS JOURNAL, Oct. 1931).

It is a striking flower distinguished by the long purple clavate hairs in the throat. Very much smaller is *H. thureti,* whose charming little flowers, less than an inch in diameter, are cup shaped with the lobes spreading abruptly. They are yellow-ochreous in color with small blood-red spots on the lobes. On the disk and in the throat the spots run together forming transverse lines. *(To be continued)*

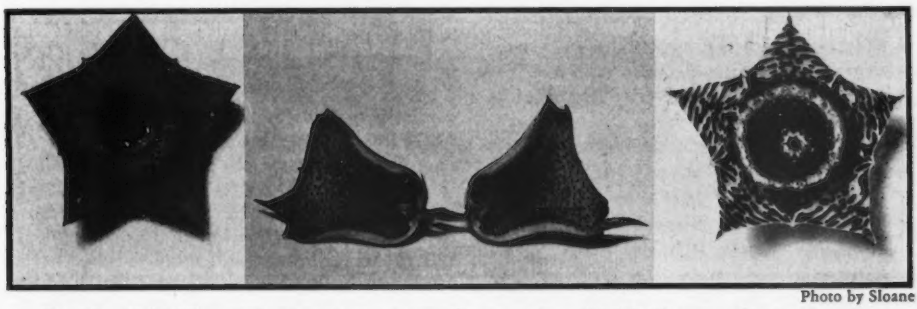


Photo by Sloane

FIG. 29. (Left) *Huernia brevirostris* var. *intermedia,* exact size. (Right) *H. transvaalensis,* exact size. (Center) *H. longituba,* longitudinal section, exact size.

Following in Dr. Rose's Footsteps

(Translated from the German manuscript by James West)

By CURT BACKEBERG

It is always so—when someone searches out something the first time it is always easier for the next one. He has the guidance and experience of his predecessor. The first one must travel as his project bids him, the second as the experience of the first dictates.

After a glance at Dr. Rose's work in Peru, let us see what we found that was new. Altogether there were about 21 species. The exact number will only be known after a final check-up of all the material. I believe that one of the reasons I was able to find new material was that many of the species were not bearing fruit during the season of Dr. Rose's stay *(at Mila kubei)* and because he either did not value the importance of Huancabamba, the northern Cordilleran village, due no doubt to the vagueness of the literature; or else was unable to reach the place because of his itinerary.

Just because of Dr. Rose's notes to the effect that he had noticed two different *Espostoas* but found it impossible to observe the southern Ecuador species *in situ,* I was led to go to Huancabamba both to observe and study this *Espostoa* problem and systematically to explore Peru. It was a lucky thought, for there in the North behind that desolate sandy desert of the Despoblado lies an enormously interesting cactus region which yielded quite a few new species.

One cannot judge the back country from the coast. On first seeing the desolate stretches of sand dunes one is inclined to return rather than to go on, yet in the distant mountains lies a wonderfully fruitful land where one can find not only all sorts of fruits, coffee, sugar-cane, and cultivated corn, but back of the broad fields of rice there is also a range of forested mountains with a luxuriant vegetation especially rich in orchids, the like of which I have hardly seen anywhere.

Venturing farthest into the Despoblado are *Lemaireocereus cartwrightianus,* and a Melocactus which I named *Melocactus unguispinus,* sp. n., because its tall cylindrical growth with its enormous, colored, clawlike thorns is entirely different from *Melocactus townsendianus* of central Peru. The Lemaireocereus is known. It is a species not glaucous on the young growth, but with weirdly long and strong spines.

The area of transition between desert and arable land yields a number of novelties such as the following:

Haageocereus rigidissimus and *auricolor,* gen. n. et sp. n.

Photo by Curt Backeberg.

Opuntia pachypus, Schumann, rarest of all cylindric Opuntias; not found by Dr. Rose in his travels.

These are up to 1.20 meters (four feet) high, densely spiny, highly colored cerei of exceptional beauty which have neither the hair of *Binghamia* nor the flower forms of *Borzicactus,* and so form a separate sub-genus of *Cereus* (related to the old *Cereus multangularis* Haw. ??). These splendid *Cerei* seem to be exceptionally good growers. Young plants of this species are of wonderful beauty, so densely bristly with blackish-brown spines that one can scarcely see the body of the plant. Peculiar is their exceptional water storage capacity; they

can double their girth of the dry season.

Neoraimondia gigantea, sp. n. was the second surprise.

It is a gigantic, blood-red flowering species to which is to be added the comparatively small *Neoraimondia roseiflora* of the Rimac valley. The very large *Neoraimondia macrostibas* of southern Peru has white blossoms.

In crossing the mountains I found *Rhipsalis micrantha* and the wonderful *Pilocereus haenssleri* sp. n., light blue with black and white spotted spines and snow white cephalium-bristles. I also found the odd *Cereus microspermus,* sp. n. The main stem of this cereus as it grows older becomes smooth and round. The new growth is many-ribbed, with gold-brown bristles. In the lower bush-forest of the cordillera we found two *Monvillea*-like cerei which are no doubt night-blooming, one white and the other rose. They are not yet named.

During the subsequent crossing to Huancabamba I found two wonderful Espostoas which I later named *Espostoa humboldtiana,* sp. n. and *Espostoa sericata,* sp. n. They differ as follows: *Espostoa sericata* lacks a long central spine, but has quite short, glassy, yellow-white radials; fruit red, and seed not glossy. *Espostoa humboldtiana* is heavily armed with ivory colored, red-tipped central spines up to 10 cm. (4 inches) long, and red radials. The fruit and seed are as above. Because they are found side by side, many natural hybrids are to be seen which show various transitional forms. Interesting, too, is the cephalium, which arises from the central axis of the stem, that gradually bursts open. An entirely different manner of forming the cephalium, the glossiness of its seeds, and big differences in their germination period lead me to think that we are dealing with perhaps another subgenus, other than the *Espostoas* of central Peru, which branch from the base and not above ground as does *Espostoa sericata.* In addition, the fruit is white.

The *Espostoa* of southern Ecuador which has, according to Dr. Rose's picture, yet another habit, seems therefore to be close to the form from Huancabamba, but still distinct from it. Altogether we have four forms of *Espostoa,* of which three are decidedly different.

I present a photograph of a group which is in the course of becoming completely crested. The memory of other crests that I have noticed brings me to the conclusion that the crests are not a crippling of the growths; that we are wrong in considering this a result of disease.

Every collector knows that crests occur usually on old, strong, healthy-looking plants, even among the globular genera. I found a crested *Oroya,* the largest plant I came across. Here it may be explained by the growth in two directions but in the *Cerei* the case is somewhat different, as crests generally appear only on a single branch.

Photo by Curt Backeberg.

Espostoa sericata cristata, Backeberg, new species. A plant with every stem crested after reaching maturity. Photograph taken near Huancabamba, Peru.

The *Espostoa* crests lead me to suppose—it being unthinkable to consider so splendid a specimen as diseased — that a crest is but an exuberance of vegetative urge in plants growing in an exceptionally favorable environment; that the excess of vigor can find no other outlet than an increase of the vegetative cells in two directions, therefore: that a crest presents a rarely occurring example of the utmost in vigorous development of which a cactus is capable—a supposition which is borne out by the appearance of most crests in nature. In smaller crests one has, of course, to imagine how they will look at maturity.

Among thousands of musicians we have only one Beethoven, one Bach, etc. Final perfection is as rare as are crests.

In Huancabamba I re-discovered all the long-known species: *Borzicactus aurivillus,* of which I found a very distinct relation in *Borzicactus sanderi,* sp. n., *Cereus serpens,* something like an *Aporocactus, Lemaireocereus laetus* different from the central Peruvian species, *Cereus chlorocarpus* with tree-like crowns like those found in *Myrtillocactus geometrizans,* and a new *Trichocereus,* with hardly any spines to speak of.

In central Peru I was able to establish the specific distinctness of *Mila caespitosa* from the

Mila from Matucana; to find *Mila kubei* and a third *Mila* near Chosica. At this latter place I found not only the pale green blossoming *Binghamia cajamarquilla,* but another dark-rose flowered one with different spines, *Binghamia chosiquensis,* sp. n.

Readers will be interested to know that I found again *Opuntia pachypus* which Dr. Rose searched for unsuccessfully clearly because of an error in Professor Weberbauer's travel notes, for this particular Opuntia does not grow near Cajamarquilla, but above in the nearby Eulalia valley, near Costa. Two specimens of the peculiar cylindrical species I brought home are growing vigorously.

Near Matucana I was able to differentiate one form of the *Espostoa* of Chosica (which I named *Espostoa dautwitzii* to keep all the different forms apart) from *Espostoa lanata* of southern Ecuador. I also found a very small *Borzicactus* with fairly abundant white wool, *Borzicactus laniceps* sp. n. (provisional name).

Near Chosica grows another *Tephrocactus,* the biggest I have seen. This cactus differs from *Opuntia hemisphaerica* in its fairly large elongate-oval joints, and different spine arrangement on the new growth (*Opuntia kuehnrichii* sp. n).

I also believe that *Opuntia floccosa* var. *denudata* is a separate species; at least the specimens I saw leave no doubt of this. It occurs as often as *Opuntia floccosa,* but due to its woolless, green appearance it seems less conspicuous in the landscape. In this case which is the variety of the other?

There is also another—a yellow-haired *Opuntia floccosa* which has reddish-yellow flowers; and a variant which has enormously thick stems that look like a small *Pilocereus* of about 25 cm. (10 inches) height and 10 cm. (4 inches) thickness.

Because I happened to be the first to travel the new road to Arequipa in southern Peru, I found far above Mollendo a small *Malacocarpus* (compared with *Malacocarpus mollendensis*), dark green, not grey-green like the one from Mollendo, and more densely spiny. Also a quite remarkable *Trichocereus* whose new growth looks like that of a *Neoraimondia.* It is *Trichocereus cephalomacrostibas* sp. n. In the desert I also found a very beautiful cereus with very strong, platinum-grey spines—a typical desert plant—*Cereus platinospinus* sp. n.

I was able to bring specimens to Europe of all of the unknown species as far as I knew, all of which are growing splendidly. I hope to be able to propagate enough in time to supply some to the trade and furnish excellent material for identification.

To sum up: Peru has yielded us a large series of the most glorious *cerei,* which represent an extraordinary enrichment of that group, particularly in regard to variety and beauty of color. It is to be hoped that amateurs will become interested in these species so that their distribution in collections will justify the great costs and hardships represented by such an expedition into the Andes.

I must add that the excellently accurate indications of type-localities by Dr. Rose made the gathering of the known species very much easier, also the planning of the expedition. The report of my travels as well as a careful description of all the new species, including some that have arrived from Mexico, Bolivia, Argentina, etc., since the appearance of the last publication will appear profusely illustrated in the near future.

Mr. Backeberg has a very interestingly illustrated catalog of seeds from his Peru Expedition and other collecting trips that he will send to anyone interested. The catalog shows pictures taken in the field of the following and other rare species: *Trichocereus pasacana, Opuntia floccosa, Mila caespitosa, Cereus atroviridis* new species.

The catalog also lists his new book (which is to be reviewed in a later JOURNAL) containing descriptions of both old and new species found on his Peruvian trip. For the convenience of those who may wish to order at the same time that they request his catalog we give his price for the book: Volume 2, "Neue Kakteen: Jagden, Arten, Kultur"—Marks 3.50. Send your request or order direct to Curt Backeberg, Hamburg-Volksdorf, Im Sorenfelde 15, Germany.

NOTICE OF CHANGE IN BY-LAWS

Notice is hereby given that at the first monthly meeting held after the expiration of twenty-five days from the date of mailing the JOURNAL in which this notice appears, the following proposed changes in the By-Laws will be voted upon:

1. In Section 1 of Article II, the sentence reading, "Officers shall assume office at the first regular meeting in January," be changed to read, "Officers shall assume office January 1st."

2. In Section 1, Article VII, the sentence reading, "The name of this publication shall be 'The Journal of the Cactus and Succulent Society of America' be changed to read, 'Cactus and Succulent Journal of the Cactus and Succulent Society of America'."

MARGARET KINCHER, *Secretary.*

BRITTON AND ROSE REPRINT

Vol. I., (6th Installment)

The following 8 pages are reprinted from "The Cactaceae" through the courtesy of Carnegie Institution of Washington, D. C. Volume I was published in 1919 and is now completely out of print. The demand for this rare volume is so great that the CACTUS JOURNAL is undertaking reprinting.

ADDITIONAL NOTE TO BRITTON AND ROSE REPRINT

Photos by Howard E. Gates

Pereskiopsis gatesii Baxter, (left) showing stem, fruit, fruit branches and leaves. (Right) Same leaves removed to show the branch-like, spine covered fruits, some of them bearing branches that will eventually cause the fruit to break loose, fall, and root to form new plants. Photographs approx. ½ natural size.

Pereskiopsis gatesii, new species

By E. M. BAXTER

In the September 1930 JOURNAL of the Society (Vol. II, No. 3) Howard E. Gates tells of a *Pereskiopsis* that he found in Baja California differing from *Pereskiopsis porteri.*

Mr. Gates has made available to the author all of his material on this interesting species, and it is my pleasure to present the description of the plant as a new species, and to name it for its discoverer.

The new species has vegetative characters very similar to *Pereskiopsis porteri* and when not in fruit is very difficult to distinguish from it. However, its description as a separate species is based on the following facts, which I believe are of sufficient value to warrant such action:

1. It exists in an "island", or isolated locality, in an entirely different situation than the known species. This spot is given in the description as the type locality, and is at the top of the ridge of the peninsula at an elevation of approximately 500 feet. *Pereskiopsis porteri* is to be found in low, moist localities, in Baja California.

This isolation is undoubtedly the cause of its variation from the parent that must have been common to both of the peninsular species of *Pereskiopsis.*

2. The size and color of fruit is strikingly different. Whereas in *Pereskiopsis porteri* the fruit is orange and 2½ inches long, in the new species it is deep rose colored and only ¾ inch long.

3. The mature fruit is sterile, the plant propagating by the falling of ripened fruits that have developed branches from their upper areoles. The sterility is a marked difference from the fertile fruits of *Pereskiopsis porteri.*

4. The leaves are thicker, smaller, and more rounded than in the common species. The rosettes of new leaves at branch tips have a different appearance, being more compact.

In the key to species of *Pereskiopsis* as given in Britton & Rose's "The Cactaceae", Volume I, page 25 (reprinted in the CACTUS AND SUCCULENT JOURNAL for December 1931—Vol. III, No. 6) the new species should follow *Pereskiopsis porteri* as No. 6a and the key should be changed to read as follows:

Areoles dark, filled with numerous brown glochids.

Fruit orange, 7 cm. long, lowland species.....6 *P. porteri*

Fruit rose-pink, 2 cm. long, highland species.....6a *P. gatesii*

Mr. Gates, the man for whom the species is named, is a collector of cactus throughout Lower California and California, Arizona, and Utah. He has made two long trips through Baja California, traveling by auto from Anaheim, his home town, to Cabo San Lucas and return. His contributions of new species will amount to more than a dozen when they have all been described.

This particular species has been collected in the same locality on both trips, and specimens have been distributed to various museums and private collections here, as well as to collectors in Europe. It was known previously only by number, his designation of it being "Pereskiopsis Gates No. 110." An illustration is given on page 4 of the July, 1931 JOURNAL (Vol. III, No. 1). His account of its discovery is to be found at the reference given in the first paragraph of this article.

A description follows.

Pereskiopsis gatesii, new species

Stems slender, 5/8 inch (15 mm.) in diameter, 6 to 8 feet (2 to 3 m.) long, clambering, supported by low trees, goody, gray; bark scaly when old; young stems pale green with many short, 3 inch (7 cm.) long branches set at right angles to the main stem. Tubercles on young branches low, narrow, 1 inch (2.5 cm.) long. Roots when young somewhat fleshy, when old fibrous or woody. Areoles circular, dark, filled with long, bristle-like brown glochids; spines one to several, 2 inches (5 cm.) long, grayish to chestnut base and dark brown to black tips, sheathed in thin papery sheath of similar colors. Areoles of old stems practically spineless. Leaves glabrous, green, sessile, obovate, acute, fleshy, 1 inch (2.5 cm.) long. Flowers not known. Fruit deep rose-pink; 3/4 inch (2 cm.) long, 3/8 inch (1 cm.) in diameter; long-obovate; truncate; areoles with brown felt and one or more short brown spines; leafy, and developing short branches; sterile, sometimes by abortion of seed.

Type locality: 15 miles southwest of La Paz, Baja California, Mexico, on Tepetates Road at crest of Peninsular divide.

Distribution: Known only from the type locality.

Type Specimen: As yet unnumbered in the Herbarium of the California Academy of Sciences, at San Francisco. Collected by Howard E. Gates, March 6, 1930, and March 13, 1931.

California Cacti

Carnegiea gigantea—Giant Cactus

By E. M. BAXTER

The stories of the occurrence of this species in California are mostly semi-legendary and it was doubtfully included in the list of native species at the beginning. To make certain, and to obtain a photograph of a specimen on California soil, a trip was arranged with Mr. Haselton, Editor of the JOURNAL, and another friend and the species was located.

Had it not been for Mr. Carl A. Denk of Blythe we probably would never have come across a specimen. Mr. Denk, born in the Blythe section of Riverside County, told us of having seen two plants of the Giant Cactus while hunting. We determined to find at least one of them and set out for the task, taking with us a chart which he prepared for us.

We crossed the Riverside County line about two miles from the Colorado River and entered Imperial County at the nearly deserted town of Palo Verde. Five miles out of Palo Verde, and a half mile from the road, we spotted the first specimen.

It was growing in a wash in rolling desert country. There were dwarfed plants of *Opuntia acanthocarpa,* clusters of *Opuntia basilaris,* and an occasional *Phellosperma tetrancistra* growing on the tops and sides of ridges and washes in the vicinity. We searched the country for miles in every direction but saw no other plant of *Carnegiea gigantea.*

We did not go to the other plant, but from the descriptions given by other persons it is growing in a similar situation about five miles west of Palo Verde in one of the washes leading up to the Mule Mountains.

The specimen we saw was about fifteen feet high. It had one small branch just beginning to grow out from a point ten feet above the ground. The plant was perfectly shaped and had not been injured in any way. It was a fitting plant to be used as the type specimen of California occurrence of the species.

In various books mention is made of the occurrence of *Carnegiea gigantea,* or *Cereus giganteus,* in California. Perhaps the most definite of any is that in Jepson's "Manual of the

Flowering Plants of California" where he (through Mr. Samuel B. Parish) gives the following occurrences of the species:

"Rocky hillsides, in groups along Colorado River: Riverside Mts.; opposite mouth of Bill Williams River; above Yuma dam; east to Arizona."

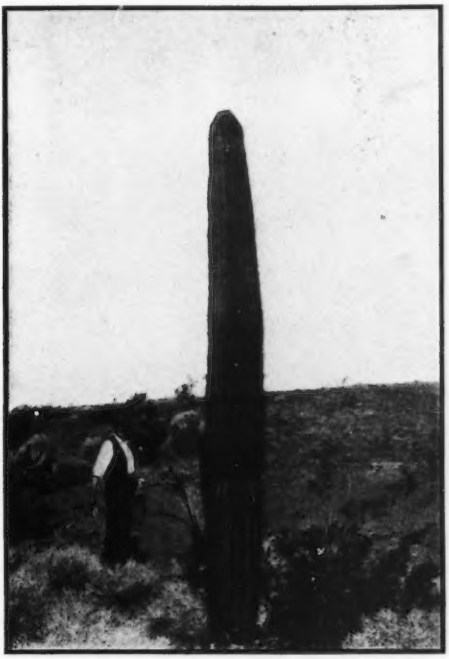


Photo by E. M. Baxter.
Carnegiea gigantea
Growing in California near the Colorado River

The distribution of this species in California is very evidently an accidental one. The only large group of them is at the mouth of the Bill Williams River where it empties into the Colorado and may be attributed to an early day flood which undoubtedly carried seeds or even small plants across the Colorado with its momentum, and deposited them on California soil.

Birds and Indians may easily account for the other specimens found southwards from the above mentioned point to near the boundary line of Mexico. The fruits of the Giant Cactus, or "Saguaro" as it is commonly known, have been a staple food of the Papago, Pima, and other Indian tribes since prehistoric time; seeds discarded by them after having made a syrup of the pulp of the fruit were eaten by birds. The discarded seeds and seeds carried by the birds would account for many plants on California's side of the river.

Much has been written of *Carnegiea gigantea.* It is the largest of all North American species of cactus and maintains a picturesque part in desert illustrations.

There are many spellings for the common name of the Giant. "Saguaro" and "sahuaro" are the preferred, but the following are often used: "suwarrow, suwarro, suaharo, suguaro". All are phonetic spellings of the old Mexican name which was given early in the eighteenth century. Before that time and as early as 1604 it was classed with all other tall fruit-bearing cactuses and called "pitajaya" (pronounced pee-tie-yah).

California is fortunate to be able to claim this magnificent cactus as one of its native species.

List of illustrations of *Carnegiea gigantea* appearing in the Journal of the Cactus and Succulent Society:

VOLUME I.
No. 1, Page 1. July 1929
No. 1, Page 8. July 1929
No. 8, Page 141. February 1930
VOLUME II.
No. 2, Page 294. August 1930
No. 2, Page 295. August 1930
No. 5, Page 349. November 1930
No. 9, Page 438. March 1931
No. 10, Page 462. April 1931
VOLUME III.
No. 3, Page 2 of Britton & Rose reprint. September 1931
No. 4, Page 69. October 1931.

A Few Things Worth Remembering

By W. H. MORSE

All growers of seedling cacti have noticed many of the seedlings, especially *Cephalocereus senilis,* when watered, the seedlings float from their places. On search over the pans with a good lens, I discovered the culprit. It is a small insect shaped like a Woodlouse (Springtail; Order *Collembola*), but moves quickly in short jumps. The favorite food are the young roots which issue from the base of the young seedlings.

REMEDY: Smoking tobacco shaken over the surface of the pans until the surface is well covered, then place a sheet of glass over the pan and leave it for two days, then blow the tobacco off. Generally one dose is enough.

How I disinfect the sand that is used for covering the seed: There are generally spores of Phytophthora, the Cutting Bed Fungus in the sand and if this gets started goodbye to the seedlings. I lay the sand out say half an inch thick. Use a plumber's torch with a blue flame, and play the flame on the sand, going all over the surface. Turn the sand with a trowel, level the sand and repeat the process. I keep this sand in a covered can. This prepared sand prevents the germination of fungus which is so deadly to seedlings.

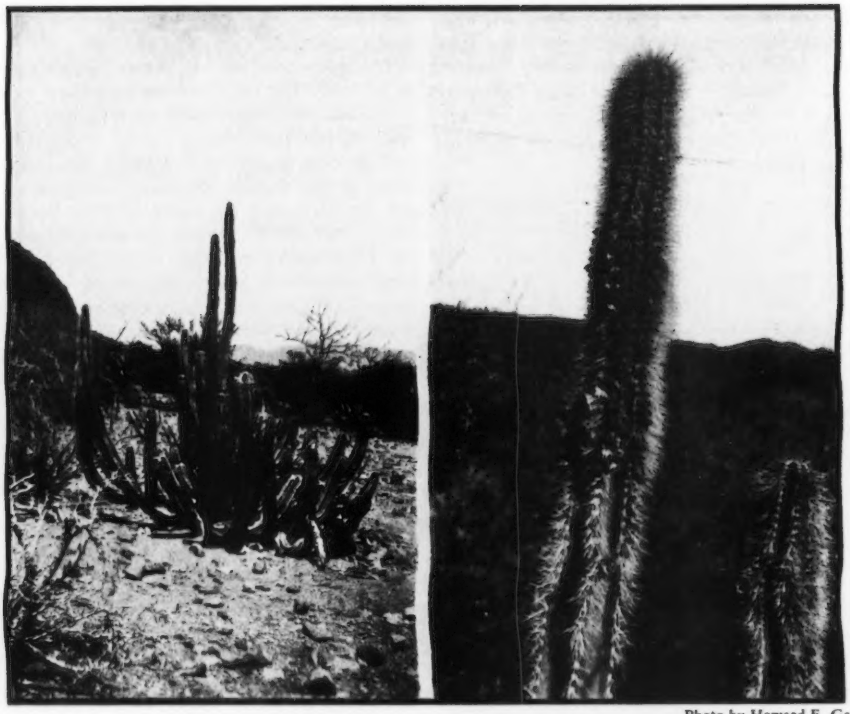


Photo by Howard E. Gates

Lophocereus sargentianus, Mulegé, Lower California

Lophocereus in Lower California

By HOWARD E. GATES

Lophocereus schottii first raises its hairy head above the brush near Mission Santo Domingo, about two hundred miles south of San Diego, California. Here the plants are very sparsely scattered. They are of a heavy type, branching from the base. As one goes southward the species becomes more plentiful, though never reaching the abundance of the other forms of cacti. This form reaches its greatest luxuriance in the broad washes near the old mining camp of Calmalí. It often reaches a height of ten to twelve feet with numerous branches of a somewhat more slender type than is found farther to the north.

When young the spiny branches of this plant give no indication of the coming glory of their mature hairy heads. Very seldom does the hairy form of spines appear before the branches are three feet high, and more often four feet. The hairy spines grow so thickly from the closely set areoles on the wide spread ribs that the intervening spaces are hidden. At first they are reddish brown, changing later to gray or sometimes nearly black. The flowers appear on the hairy portions of the branches over a long period in the late spring and summer. Their white or light pink petals are often found side by side with the scarlet ripe fruit. The fruit is nearly an inch long and edible, though so seedy many do not enjoy it. However, the black shining seeds are a rare treat to the birds and it is often hard to find fruit they have not attacked.

Farther south in the volcanic mountain section between Mulegé and Comondú is another form. Probably it should be called *Lophocereus sargentianus*. This plant has more slender branches, also growing from the base of the plant, and they are more numerous than in the customary form of *L. schottii*. Fortunate is the person who comes upon a large clump of them before their flowers close at ten in the morning. The flower is possibly an inch and a half long,

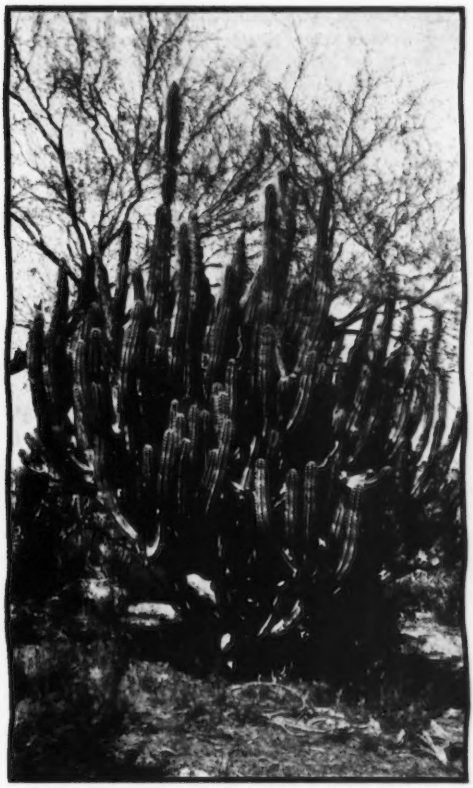


Photo by Howard E. Gates
Lophocereus australis
Lower California

trumpet shaped, shell pink with a creamy yellow throat.

A third form, Lophocereus australis, occurs in the Cape District, which is the swollen tip of the Peninsula south of La Paz. The branches of this are still more slender and reach a greater height. A plant just outside of La Paz has reached a height of about twenty-five feet and has at least a hundred branches. The greatest distinguishing mark of *L. australis* is that whereas the other two forms branch at the ground, this has a definite trunk and the branches appear at varying distances from one to four feet above ground.

The natives say there are three kinds of fruit found on the "Garambullas", as they call the *Lophocereus.* They are said to be the red, yellow and purple forms. I have only observed the red form. A resident of San Jose del Cabo showed me a plant in his garden that appeared to be the Australis type. He said it was a mountain species and gave me a wondrous tale of its excellent fruiting qualities. It was too early in the season to verify the story. The ribs of all forms vary from four to nine. I have not microscopically examined the various forms, but knowing that some have claimed there were more than the one recognized species of *Lophocereus,* I kept my eyes open on my last springs' trip and feel that probably the separation of the genus into three species will be justified.

I have never found or heard of a cristate *Lophocereus.* The monstrous form described and illustrated in the August JOURNAL (Vol. III, No. 2, p. 38) is the only freak form I have seen. This monstrous form has been described in Germany as *Weinbergia cereiformis.* The only collection of all four forms are the small plants in my garden at Anaheim. They are not large enough to have the hairy spines.

(EDITOR'S NOTE—See also the JOURNAL Vol. I, No. 1, p. 7-9, and Vol. II, No. 9, p. 341, for other illustrations of this genus.)

Vitis quadrangularis, a succulent vine

By LEON C. CROIZAT

My excuse for writing about a Vitis in our JOURNAL, which is concerned with cactuses and succulents, is contained in the following lines, which close the description of *Vitis quadrangularis, given in "Natal Plants" by J. Medley* Wood (plate 393, Vol. 4):

"A singular wide-climbing plant which trails over trees and shrubs and has very much the appearance of a member of the cactus family."

As a matter of fact it does, very much so. Vitis quadrangularis, displayed with cactuses and euphorbias is practically lost amongst them and takes up a family air which will deceive any one but the expert.

Technical descriptions arranged by systematologists are tedious and irksome business. I shall, however, picture *Vitis quadrangularis* in extenso after the description of it given in "Natal Plants" quoted above, which seems to me a "chef d'oeuvre" of its kind:

Vitis quadrangularis, Linn. (Fl. Tropical Africa, Vol. I, page 399) *Natural Order* AMPELIDAE.

A wide-climbing branching plant with succulent, quadrangular, green winged stems and branches which are constricted at the nodes, deeply furrowed, espe-

cially the younger portions, the angles acute and more or less winged, the wings not ciliate, the whole plant quite glabrous. Leaves alternate, very few petiolate, stipulate, usually deeply three-lobed, the lateral lobes patent, almost truncate, the terminal lobe erect, trilobed at apex, the lobes mucronate, the sinuses wide and rounded; occasionally a leaf is broadly ovate, with two or three shallow mucronate lobes on each side; texture rather thick, lateral veins more or less immersed; dark green and shining on both surfaces; 1 to 2 inches wide, ¾ to 1 inch long (in our specimens), petiole 3 to 8 lines long, channeled above; stipules broadly ovate or semi-rotund, membraneous edged, 2 to 3 lines* long and wide; tendrils long, slender, furnished with a minute deciduous bract. Inflorescense cymose, the cymes lateral, compound. Peduncles 6 to 12 inches long, many flowered, pedicles ¼ to ½ inch long. Calyx cyathiform, bluntly and indistinctly lobed. Petals 4, greenish yellow on inner surface, outer brownish, hooded at apex, reflexed and very soon deciduous, 1¼ by 1½ line long. Disk cup-shaped, entire. Stamens 4, filaments very short, erect; anthers 2 celled, dorsi-fixed. Ovary superior, 2-celled, cells 2-seeded. Fruit ½ inch long by 4 lines wide, ovoid, red when ripe.

Habitat: Natal, Zululand, Wood 9935. Described from a plant brought from Somkely, Zululand, which flowered in the Botanic Gardens, Durban, October, 1905. . . . The fruit is said to be edible. The plant is also found in tropical Africa, Arabia, India and the Moluccas."

Bailey's Cyclopedia would classify *Vitis quadrangularis* amongst *Cissus,* on account of floral particularities. It describes it, however, under the head "Vitis", page 3482, and states that the plant has been for some time under cultivation in Southern California.

According to the "Index Londinensis", Vol. VI, page 481, our *Vitis quadrangularis* was first illustrated by Rheede in "Hort. Mal. VII, t. 41" in 1688. This seems to point to a Moluccan origin when first known, the discovery being actually made by some Dutch navigator. The next picture of the plant appeared in 1838 by Wight, in "Iconographia Plantarum Indiarum Orientalium" i. t. 51.

Having witnessed under the skies of New Orleans and Texas to happenings which are nothing short of a miracle in horticulture for the dweller of our Northern shores, I have come to understand why so many cultural suggestions we read about are wanting, if not misleading. A friend and lover of succulents living in California will find his plants far easier to deal with than has the writer. In connection with *Vitis quadrangularis* I will say this much: that it behaves like a reasonable *Euphorbia* of the *Trigonae* (*Euphorbia lactea* for instance). It seems to be pleased with a soil which is half rich loam, half sand, with some good leafmold and some lime thrown in for good measure. Water may be given the year around with the question open whether it is advisable to allow the plant a rest in the month of January and February. It is prudent not to expose the plant to temperatures below 45 to 50 Fahr. for some length of time. At least let the owner of one of these plants study it and work out a set of rules congenial with the climate and surroundings he has to reckon with. What I am stating is a rough yardstick to be worked upon and improved if need is shown.

Reproduction is most easily effected from May to middle September up here, rooting joints and half joints the same way any regular cactus or *Euphorbia* slip is treated, either in sharp sand or sand with traces of organic silt (I have found this a wonderful medium). After having been cut, the joints require a few hours' drying, and after being planted must be allowed to rest for a day or two without water. Water is to be given afterwards, keeping the sand around slightly moist at all times. Let me insist again that watering slips being the most intricate part of our trade, my suggestions are not to be taken as iron clad rules..

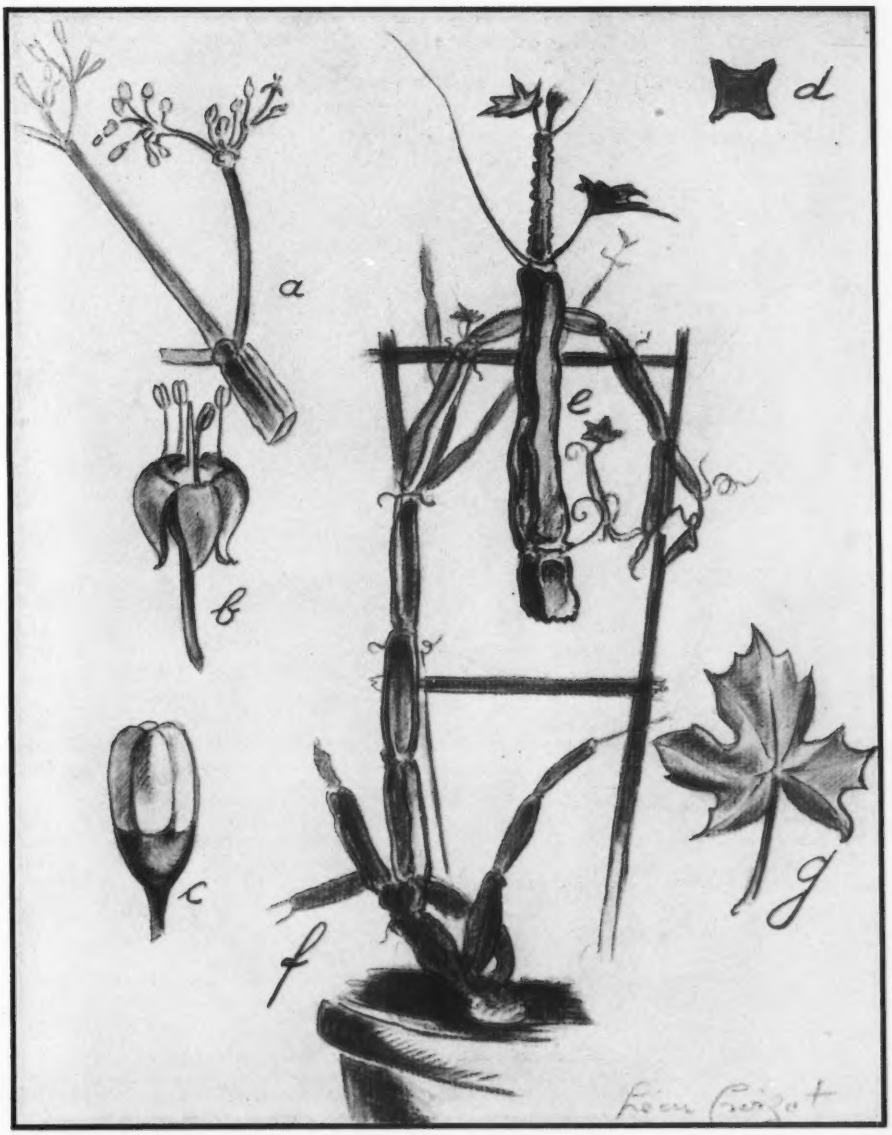
With the temperatures ranging from 70 to 85 Fahr. the rooting is fairly rapid, taking about 20 days. Some slips show not only roots but new vegetation of an advance order either lateral or terminal in one month's time. The roots are very much like *Euphorbia trigonae*, thick and spreading. If necessary the slips may be transplanted into their final home as soon as they have formed a kind of callous on the cut, planted shallowly. Rooting will be somewhat delayed but will be effected just the same.

Avoid making slips from old joints or tender, new vegetation. The former are very long in rooting, even if they possess enough vitality to grow at all. The latter "melt" away into a watery pulp in a couple of days.

If nothing but old joints can be had it is safer to allow them to dry a couple of days, plant them directly into good soil, and water, keeping an eye on them. Tender sprouts are a more difficult proposition to deal with. Remember that little water is better than much water, but do not forget that your precious slip may dry and shrivel up, too. Use good sound horse sense, the dropper for watering and trust the Almighty to help you out.

Vitis quadrangularis with its queer joints, pert leaves, and puzzling appearance all around is a welcome addition to a window or an open porch. It works its shadows out in a kind of "latticed" appearance which is pleasing against any source of light. Even when it is impossible to plant it in open ground, it will thrive in pots and pans, with convenient support tendered its trailing branches.

*line = one-twelfth of an inch.



Vitis quadrangularis.—Figure A shows an inflorescence; Figure B a flower (greatly enlarged, of course); Figure C a flower bud (also enlarged). These three figures are drawn from the sketches shown in "Natal Plants" for it has never been the writer's privilege to see *Vitis quadrangularis* in flower. Figure E, drawn from life in actual size, shows a sprouting extremity, with joints, tendrils and leaves. Figure D gives a cross-section of a stem or joint; Figure F will give one an idea of what the plant looks like, with its support. The size of the joints has been exaggerated on purpose, the whole plants being about 3 to 5 feet tall. Figure G is the leaf's picture. Figures D, E, F, G, are all from life.

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By Mary Norwood Lawrence

Of all the pamphlets, booklets or illustrated plates which come to a grateful Cactus Patch, none is more beautiful than Herr Doctor Erich Werdermann's "Bluhende Sukkulenten". A trained mind and trustworthy photos make of his color illustrations something more than maps. The more recent folder which was received reproduced several *Echinocactus* in flower with a fidelity worthy of an art gallery, Dr. Werdermann having found time to graduate in color photography. The literature with the photographs is abundant and scholastic, written in the Herr Professor's best German.

Now that the "Cactus and Succulent Society of Great Britain" is definitely formed after months of preparation and conjecture, they are coming on with strides. E. Shurley, Esq., is honorary secretary of the organization and writes enthusiastically of working in conjunction with our American Society, and is already a subscriber to the Journal. They are anxious to make a file of American catalogues and price-lists. Fifty members at the first roll-call promise at least three hundred during the coming year.

Mrs. A. Lang of Kingman, Arizona, is a regular correspondent of the Patcher, and has been sending in some native Mammillarias which are, as yet, unidentified. Mrs. Lang has lived in Arizona and tramped over its desert wastes for many years, and she writes that these plants were found only in two remote districts. Perhaps someone will name them for her. They may be seen at the Cactus Patch.